

A CLADISTIC ANALYSIS OF THE GENERA OF THE LESTONOCORINI
(HEMIPTERA: PENTATOMIDAE: PENTATOMINAE)

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Abstract.—The four genera of the Lestonocorini (*Gynenica*, *Lestonocoris*, *Neogynenica*, *Umgababa*) are analyzed cladistically. The tribe is known from Africa and the Indian subcontinent. Their foodplants, all Acanthaceae, are listed.

The genus *Gynenica* Dallas has for some time avoided tribal placement in the Pentatominae. Leston (1953) noted its differences from other genera, and concluded "it probably deserves tribal status within the Pentatominae" (p. 182). In 1980, Ahmad and Mohammad created the pentatomine tribe Lestonocorini for *Lestonocoris* n. gen., and placed *Gynenica* therein; the former genus was so named in order that the tribe might honor Dennis Leston, who first suggested the taxon. Included in Lestonocorini with these two genera were *Umgababa* Leston (raised from subgeneric rank within *Gynenica*) and *Neogynenica* Yang (raised from synonymy with *Gynenica*). Four years later, Shafee and Azim (1984) created the tribe Gynenicini to include *Gynenica*; they did not mention the Lestonocorini, although a year later Azim and Shafee (1985) commented that "the tribe Gynenicini" is "closely related to Lestonocorini Ahmad & Mohammad, but differs from it in the shape of the female genitalia and last abdominal tergum" (p. 9). Shafee and Azim (1984) did not examine other genera placed by Ahmad and Mohammad (1980) in their Lestonocorini, and placed *Gynenica* alone in Gynenicini. The two tribes are the same, as is

suggested by the inclusion of the same genus in each, and is evident from an examination of specimens and the literature. We synonymize Gynenicini Shafee and Azim 1984 with Lestonocorini Ahmad and Mohammad 1980.

METHODS

Specimens of the following species were examined: *Gynenica marginella* Dallas (type species), *G. affinis* Distant, *G. basilewskyi* Leston, *G. carayoni* Leston, *G. funerea* Horváth, *G. malaisi* Leston, *G. rustica* Distant, *G. qadrii* Ahmad and Mohammad (type specimen); *Lestonocoris karachiensis* Ahmad and Mohammad (type specimen); *Umgababa capeneri* (Leston) (paratype specimen), and *U. tellinii* (Schouteden). We have been forced to rely on illustrations and descriptions for several other species: The type and apparently only specimen of *Neogynenica izzardi* Yang appears to have been mislaid (Muséum National d'Histoire Naturelle; pers. comm., J. Carayon, Jan. 9, 1987). Several requests to the Zoological Survey of India, and to Azim and Shafee, remain unanswered, and so we have not seen *Gynenica ghaurii* Mathew and *G. alami* Shafee and Azim.

Table 1. Characters and their states in the genera of Lestonocorini. Plesiomorphic states indicated by 0, apomorphic states indicated by 1, 1', etc. (see Fig. 1).

	a Clypeus and Paraclypei		b Pronotal Humeral Angles		c Scutellum	d Female Genitalia	
<i>Gynenica</i>	subequal	0	prolonged, often spined	2	longer than broad	acuminate	1
<i>Neogynenica</i>	paraclypei longer	1	prolonged	2	longer than broad	(acuminate?)	1
<i>Lestonocoris</i>	subequal	0	not spined	0	not longer than broad	subacute	0
<i>Umgababa</i>	subequal	0	somewhat spined	1	not longer than broad	acuminate	1

Polarity was determined by outgroup comparison with the family Pentatomidae and the superfamily Pentatomoidea.

DISCUSSION OF CHARACTERS

Tables 1, 2

Clypeus and paraclypei (character a).—Relative lengths of the clypeus and paraclypei vary so greatly in the Pentatomoidea, we can only suggest that the commonest relationship (subequality) is plesiomorphic here. However, we note that where elsewhere in the superfamily the paraclypei are longer, they often converge in front of the clypeus; they do not in *Neogynenica*. Also, the paraclypei in *Neogynenica* are somewhat pointed, an unusual feature which is probably correlated with their being prolonged.

Humeral angles (character b).—Spined humeral angles occur elsewhere in the Pen-

tatomidae, but sufficiently infrequently and sporadically that their presence here can be considered apomorphic. That is, the infrequency of spined angles elsewhere in the family makes it unlikely that they have arisen more than once within the Lestonocorini. The angles are produced but not sharply so in *Umgababa*, which represents a condition intermediate between that of *Lestonocoris* and *Gynenica-Neogynenica*.

Scutellum (character c).—We could not determine the polarity of the length-breadth relationship of the scutellum (character c); but see the Discussion of Cladogram.

Female genitalia (character d).—The acuminate female genitalia, a particularly characteristic feature of this tribe, was what first struck Leston. We believe that the somewhat more rounded, less pronounced genitalia of *Lestonocoris* is plesiomorphic. *Neogynenica* is known only from a single male

Table 1. Continued.

	c Spermathecal bulb		f Ventral Rim of Genital Capsule		g Paramere	h Dorsal Conjunctival Appendage		
<i>Gynenica</i>	round	0	deeply incised medially slightly incised medially and sublaterally	1 1'	with dorsal lobe	1	short	1
<i>Neogynenica</i>	?		?		?		?	
<i>Lestonocoris</i>	round	0	slightly incised medially and sublaterally	1'	without dorsal lobe	0	well developed	0
<i>Umgababa</i>	oval	1	slightly incised sublaterally	1"	without dorsal lobe	0	short	1

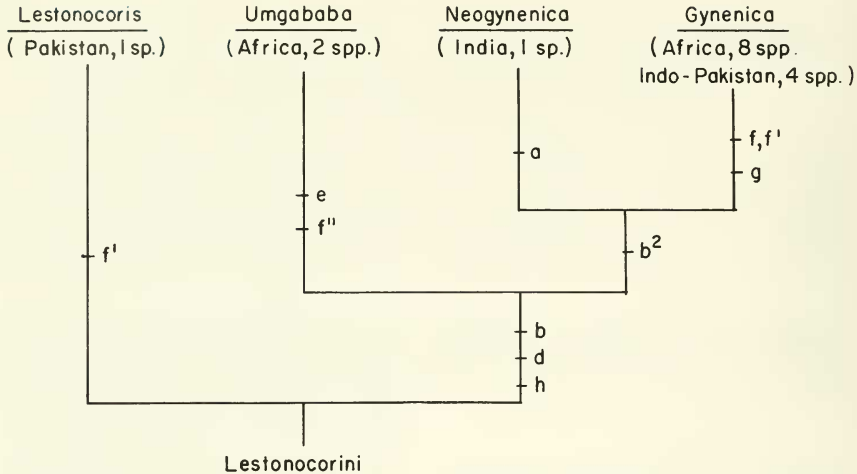


Fig. 1. Cladogram of Lestonocorini genera. Polarities: $0 \rightarrow b \rightarrow b^2$; $0 \rightarrow f'$ (see Table 1).



(now unavailable), but the specimen (as figured by Yang [1935]) is so close to *Gynenica* we believe the female genitalia will, like *Gynenica*'s, be acuminate.

Spermathecal bulb (character e).—The lack of projections on the bulb (as occur, e.g., in the Podopinae [Schaefer, 1983]) is doubtless plesiomorphic, being characteristic of most nonpentatomid pentatomoids. Because round bulbs occur in the primitive pentatomoids, we believe the oval shape in *Umgababa* is apomorphic.

Genital capsule (character f).—The several types of emargination in the ventral rim differ in each genus. These differences may be generic autapomorphies, and we postulate each has arisen from an original non-emarginate condition.

Paramere and conjunctiva (characters g and h).—A dorsal lobe on the paramere is sufficiently unusual in the Pentatomidae that its presence in *Gynenica* is apomorphic. A long dorsal conjunctival lobe is common in

the Pentatomidae, and the short condition is apomorphic.

DISCUSSION OF CLADOGRAM

Fig. 1

Based upon the seven characters for which polarities could be reasonably deduced (characters a, b, d–h), we constructed Fig. 1. Only one homoplasy (f') had to be invoked. Unfortunately, important genitalic characters of *Neogynenica* remain unknown. Assuming the hypothesis in Fig. 1 is correct, we can suggest that a scutellum longer than broad (character c), whose polarity we could not determine a priori, is apomorphic; it occurs in the *Gynenica-Neogynenica* clade.

A test of the hypothesis will occur when specimens of *Neogynenica* become available. The cladogram predicts that this genus will have acuminate female genitalia, perhaps a round spermathecal bulb, a genital capsule probably with some emargination,

a short dorsal conjunctival appendage; and its paramere may have a dorsal lobe.

FOODPLANTS

The records we have indicate that these bugs feed on Acanthaceae (Scrophulariales): *Lestonocoris karachiensis* Ahmad and Mohammad has been raised through several generations on *Barleria* (Ahmad and Mohammad, 1982), *Gynenica alami* and *G. affinis* feed on *Crossandra* (Shafee and Azim, 1984), and Mathew (1980) records *Barleria* as the hostplant of *G. ghaurii*. These bugs and plants are found generally in dry areas.

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